

What is Claimed is:

1. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

- (a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;
- (b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of a user; and
- (c) a control module having a programmable selection scheme to control functions including received radio signals, stored radio signals and portions thereof, and an output of the stored radio signals and portions thereof;

wherein a user can select a stored radio signal from the buffer in the storage module for the output.

2. The apparatus of claim 1, wherein the output further comprises an audio signal for a sound generating device.

3. The apparatus of claim 1, wherein the output further comprises a signal for a storage medium.

4. The apparatus of claim 1, wherein the programmable selection scheme further comprises a user selectable output of a previously stored portion of a radio signal.

5. The apparatus of claim 1, wherein the programmable selection scheme further comprises selecting received radio signals based on pre-selected radio signals.

6. The apparatus of claim 1, wherein the programmable selection scheme further comprises selecting received radio signals based on time of output algorithms.

7. The apparatus of claim 1, wherein the programmable selection scheme further comprises selecting received radio signals based on a sequential scan of available radio signals and a storing of each scanned radio signal in a buffer of the storage module up to a buffer limit, and simultaneously outputting a selected radio signal.
8. The apparatus of claim 1 further comprising a user input module for storing a table of user listening preferences.
9. The apparatus of claim 1 further comprising a recognition module to recognize an imbedded code in a received radio signal.
10. The apparatus of claim 9 further comprising a user input module for storing a table of user listening preferences wherein the user listening preference identifiers are derivable from the imbedded code, thereby enabling an output based on the user listening preferences.
11. The apparatus of claim 1 further comprising a recognition module having a set of stored audio signatures to recognize an incoming radio signal.
12. The apparatus of claim 1 further comprising a communication module.
13. The apparatus of claim 12, wherein the communication module comprises a telephone signal receiver, an output signal override device and an audio output device, wherein said output from said storage module is an audio output sent to the audio output device, and the override device replaces the audio output with the telephone signal.
14. The apparatus of claim 12, wherein the communication module further comprises a message receiver means functioning to receive a personal message addressed to a user.
15. The apparatus of claim 12, wherein the communication module further comprises a message transmission means functioning to send a message.

16. The apparatus of claim 12 further comprising a use history tracking means functioning to track a use of the apparatus.
17. The apparatus of claim 12, wherein the communication module further comprises a control module programmable selection scheme parameter receiver.
18. The apparatus of claim 12, wherein the communication module further comprises a database receiver, the control module further comprises a user preference scheme means functioning to provide the user with an output based on the user's preference scheme.
19. The apparatus of claim 1 further comprising a signal conditioning module means functioning to separate a vocal portion from an instrumental portion of the radio signal.
20. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:
 - (a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;
 - (b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of a user; and
 - (c) a user input module for storing a table of user listening preferences.
21. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:
 - (a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;
 - (b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of a user; and

- (c) a recognition module having a set of stored audio signatures to recognize an incoming radio signal.

22. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

- (a) a radio receiver module having at least two radio receivers, each receiver capable of receiving a separate radio signal;
- (b) a storage module having a capacity to simultaneously store a portion of each radio signal received by the radio receiver module; and
- (c) a communication module;

wherein the communication module comprises a telephone signal receiver, an output signal override device and an audio output device, wherein said output from said storage module is an audio output sent to the audio output device, and the override device replaces the audio output with the telephone signal.

23. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

- (a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;
- (b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of user; and
- (c) a communication module;

wherein the communication module further comprises a message receiver means functioning to receive a personal message addressed to a user.

24. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

- (a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;

(b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of user; and

(c) a communication module;

wherein the communication module further comprises a message transmission means functioning to send a message.

25. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

(a) a radio receiver module having at least two radio receivers, each receiver capable of receiving a separate radio signal;

(b) a storage module having a capacity to simultaneously store a portion of each radio signal received by the radio receiver module; and

(c) a communication module;

said communication module further comprising a use history tracking means functioning to track a use of the apparatus.

26. An apparatus for processing multiple radio signals simultaneously, said apparatus comprising:

(a) a radio receiver module having at least two radio receivers, each receiver capable of continuously receiving a separate unrelated radio signal;

(b) a storage module having a capacity to simultaneously store in a buffer each radio signal received by the radio receiver module for later output by selection of a user; and

(c) a communication module;

wherein the communication module further comprises a database receiver, the control module further comprises a user preference scheme means functioning to provide the user with an output.

27. An enhanced radio receiving system comprising:

- (a) means for simultaneously receiving simultaneous unrelated radio inputs from a plurality of radio stations;
 - (b) means for storing in a buffer a portion of all digital radio data received by the radio receivers for later output by selection of a user;
 - (c) means for converting the stored digital radio data to an analog audio signal;
 - (d) means for outputting the analog audio signal;
 - (e) means for controlling the storing of the digital radio data and the converting of the digital radio data to the analog audio signal; and
 - (f) means for allowing a user to control the controller,
- in which the system is additionally configured to allow the received radio input to be stored at the same time as previously stored digital radio data is converted to an analog audio signal and output.

28. An enhanced radio receiving system comprising:

- (a) a plurality of radio receivers capable of simultaneously receiving simultaneous unrelated radio inputs from a plurality of radio stations;
 - (b) a memory device for storing in a buffer a portion of all digital radio data received by the radio receivers for later output by selection of a user;
 - (c) a digital-to-analog converter for converting the stored digital radio data to an analog audio signal;
 - (d) an audio output device for outputting the analog audio signal;
 - (e) a controller for controlling the storing of the digital radio data and the converting of the digital radio data to the analog audio signal; and
 - (f) a user input device for allowing a user to control the controller,
- in which the system is additionally configured to allow the radio input received by the plurality of radio receivers to be stored into the memory device at the same time as previously stored digital radio data is converted to an analog audio signal and output by the audio output device.

29. The system of claim 28 also comprising a two-way communications device.

30. A method of providing previously recorded radio output while simultaneously recording new radio content comprising:

- (a) receiving simultaneous radio input data from a plurality of unrelated radio stations from at least one radio source;
- (b) storing a portion of all of the received radio data in a digital format into a buffer in a memory device for later output by selection of a user;
- (c) converting the stored digital radio data to an analog audio signal;
- (d) outputting the analog audio signal in an audio format;
- (e) allowing a user to control the storing and the converting; and
- (f) allowing the radio input to be stored in the buffer at the same time as previously stored digital radio data in the buffer is converted to an analog audio signal and output in the audio format.

31. The method of claim 30 in which the allowing a user to control comprises allowing the user to initiate a function on the analog output signal selected from the group consisting of pausing, playing, skipping back in time, skipping forward in time, rewinding, fast-forwarding, slow-playing, and slow reversing.

32. The method of claim 30 in which the allowing a user to control comprises allowing the user to initiate recording of a portion of the radio input in the memory device for later playback.

33. The method of claim 30 further comprising allowing the user to specify at least one favorite radio station, and additionally comprising continuously storing radio data from the at least one favorite radio station.

34. The method of claim 30 further comprising continuously storing radio data from a radio station whose signal was output to the audio output device immediately prior to the radio station whose signal is currently being output to the audio output device.

35. The method of claim 30 further comprising scanning through available radio stations and storing radio data from each scanned radio stations prior to playing content from the scanned radio station.

36. The method of claim 30 further comprising allowing the user to select a radio station for audio output from which radio data is currently being stored but from which the radio data is not being output to the audio output device, and additionally comprising allowing the user to listen to content that was recorded prior to the time that the radio station was selected.

37. The method of claim 30 further comprising identifying an item of audio content.

38. The method of claim 37 further comprising acquiring, from an external system, identification data relating to the item of audio content.

39. The method of claim 37 further comprising recognizing the item of audio content using a signature representative of the item.

40. The method of claim 37 further comprising allowing the user to rate the item of audio content.

41. The method of claim 40 further comprising skipping over audio content based on the user rating.

42. The method of claim 40 further comprising automatically switching the outputting to the radio station carrying a recognized item of audio content when it is broadcast, based on the user rating of the recognized item.

43. The method of claim 40 further comprising notifying the user when an item of audio content is recognized on a radio station not currently being used to supply the audio output signal, based on the user rating of the recognized item.

44. The method of claim 30 further comprising selecting a set of recommended radio stations from information about available radio stations based on user information, and presenting the set of recommended radio stations to the user.

45. The method of claim 30 further comprising providing automatic notification of an item selected from the group consisting of a local event of interest and a local facility.

46. The method of claim 30 also comprising communicating with another system using a two-way communications device.

47. The method of 46 further comprising performing a function selected from the group consisting of downloading information about an item of audio content, downloading an identifier for an item of audio content, downloading an audio signature for an item of audio content, downloading information about radio stations, downloading a user's preference profile, synchronizing the user's data between the enhanced radio system and a different enhanced radio system, allowing the user to respond to an item of radio content, allowing the user to send a message to a user of another enhanced radio system, receiving a message from a user of another enhanced radio system, downloading a software update into the memory, downloading an audio clip into the memory, and reporting usage data.

48. The method of claim 30 further comprising playing the analog output signal without a vocal component and displaying song lyrics.

49. The method of claim 30 further comprising providing a telephone function.

50. A radio sing along system comprising:

- (a) a radio receiver capable of receiving a radio input from a radio station;
- (b) a vocal stripper for removing a vocal track from the received radio input;
- (c) an audio output device for playing received audio without the vocal track;

- (d) a communication device for receiving textual lyrics for a song; and
- (e) a display device for displaying the textual lyrics synchronously with the played audio for the song.

51. A combined radio reception and voice communication system comprising:
 - (a) a radio receiver capable of receiving a radio input from a radio station;
 - (b) a memory device capable of storing a portion of all digital radio data received by the radio receiver;
 - (c) a digital-to-analog converter for converting the stored digital radio data to an analog audio signal;
 - (d) a communication device for receiving audio communications; and
 - (e) an audio output device for outputting the analog audio signal from the digital-to-analog converter and the received audio communications;
 in which the memory device is additionally configured to store the received radio input at the same time the audio output device is outputting the received audio communications, and in which the digital-to-analog converter is additionally configured to convert previously stored digital radio data upon completion of the audio communications.

52. A radio reception and response system comprising:
 - (a) a radio receiver capable of receiving a radio input from a radio station;
 - (b) an information reception subsystem for receiving information related to the received radio input;
 - (c) a communication device capable of initiating a communication; and
 - (d) a user input device configured to allow a user to initiate a communication using the communication device based on the received information related to the received radio input.

53. A radio reception and messaging system comprising:
 - (a) a radio receiver capable of receiving a radio input from a radio station;

- (b) a user input device for allowing a user to create a message, and further configured to allow the user to indicate an attribute of the received radio input to include with the message;
- (c) a communication device for sending the message to another person.

54. A radio preference sharing system comprising:
- (a) a first radio reception system configured to allow a user to define a preference;
 - (b) a second radio reception system configured to use a preference; and
 - (c) a communication device configured to allow the preference defined using the first radio reception system to be used by the second radio reception system.